

C L A I M S

What is claimed is:

1. An apparatus for in-ground fluid evaluation comprising:
a well stock comprising plural longitudinal chambers, each longitudinal chamber having an aperture for transmitting a fluid, the length of the well stock having a ratio of at least 3:1 to the diameter of the smallest circle that encloses the perimeter of the cross section of said well stock.
2. The apparatus of claim 1 wherein said well stock is a continuous extruded column.
3. The apparatus of claim 1 wherein said well stock is one non-jointed piece from the sampling surface to the lowest sampling depth.
4. An apparatus as in claim 1 wherein no sample is removed from the hole but the fluid is monitored.
5. An apparatus as in claim 4 wherein the fluid is monitored by a piezometer.
6. An apparatus as in claim 1 wherein the plural longitudinal chambers are coextensive with the well stock.

BEST AVAILABLE COPY

7. A system for sampling in a hole in the ground comprising:

a sampling stock having a length and a cross-sectional diameter, said sampling stock comprising plural longitudinal chambers, said sampling stock including plural sample inlet apertures for admitting fluid samples into at least two longitudinal chambers;

5 at least one generally toroidal expandable packer, said sampling stock fitting within the interior aperture of the generally toroidal expandable packer, said expandable packer, when expanded, sealing the annulus between the well stock and an outer wall and preventing vertical liquid flow within the annulus.

8. The system of claim 7 further including a longitudinal chamber within the well stock that introduces fluid into the expandable packer, thereby causing it to expand.

9. The packer of claim 7 wherein the expandable material is bentonite.

10. The packer of claim 9 wherein the bentonite is selected from bentonite chips, bentonite granules, and bentonite pellets.

11. The packer of claim 9 wherein the bentonite is compressed into mats.

12. The packer of claim 7 wherein the expanded packer defines a sampling interval adjacent to the packer, and all apertures within any interval open into the same longitudinal chamber.

BEST AVAILABLE COPY

13. The system of claim 7 wherein the packer urges against the walls of a hole.

14. The system of claim 7 wherein the packer urges against the walls of a casing.

15. The system of claim 7 wherein the packer has a water-permeable cover.

16. A method of obtaining information about fluids from an in-ground hole comprising

the steps of:

forming a generally cylindrical hole;

placing a sampling stock comprising plural longitudinal chambers into said generally cylindrical hole, said sampling stock including plural sample inlet apertures for admitting fluid samples into at least two longitudinal chambers, said plural sample inlet apertures being at different points along the length of the stock and opening into different longitudinal chambers.

17. The method of Claim 16 wherein said stock is positioned into the generally cylindrical hole at the same time as the generally cylindrical member.

18. The method of Claim 16 wherein said stock is placed into the generally cylindrical hole after the generally cylindrical member is removed.

19. The method of Claim 16 wherein the hole is formed by driving.

20. The method of Claim 16 wherein the hole is formed by drilling.

21. A borehole packer comprising:
a generally toroidal expandable water-permeable fabric sock containing expandable material.
22. The packer of claim 21 wherein the expandable material is bentonite.
23. The packer of claim 22 wherein the bentonite is formed into one of spherical pellets and spherical granules.
24. The packer of claim 23 wherein the pellets are coated with a water-soluble material.
25. The packer of claim 24 wherein the pellets include pellets coated with a first thickness of water-soluble material and pellets coated with a second thickness of water-soluble material.

Add
Q3

BEST AVAILABLE COPY